WHAT IS CLAIMED IS:

1. A multifunctional opto-electronic detection system, suitable for use in detection on a biochip, the system comprising:

a linear polarizing light source set, used to provide a needed polarizing light source;

a phase modulation unit, used to modulate a phase of a passing light, so as to change a polarization state of the passing light;

a reference optical analyzing unit, comprising an non-polarizing optical beam-splitter, an analysis plate and a first photodetector and a second photodetector;

a variable incident angle optical set, comprising a quasi-paraboloidal reflective mirror, a quasi-spherical reflective mirror, and a uniaxial displacement stage that can be controlled by a feedback manner and carry a prism set, wherein the variable incident angle optical set is used to adjust an incident angle of a light onto the biochip;

an optical signal analysis unit, having an analyzer and a third photodetector; and

a microscope lens set having a camera function, comprising a lens set with a sufficient high power and an array CCD (charges coupled device), so that a reaction situation of bio-molecules can be monitored.

2. The system of claim 1, wherein the linear polarizing light source set comprises one selected from the group consisting of a device to emit a signal wavelength light with a linear polarization, a laser diode incorporating a linear polarization film, and a light emitted diode incorporating a linear polarizer.

3. The system of claim 1, wherein the phase modulation unit comprises one selected from the group consisting of a compensator, a liquid crystal phase modulator, and a photoelastic phase modulator.

4. The system of claim 1, wherein in the variable incident angle optical set, the prism comprises one selected from the group consisting of a reflective mirror, a triangular prism, and a penta prism.

5. The system of claim 1, wherein in the reference optical analyzing unit, the first photodetector and the second photodetector comprises one selected from the group consisting of a photodiode and a charge coupled device (CCD).

6. The system of claim 1, wherein in the optical signal analysis unit, the third photodetector comprises one selected from the group consisting of a photodiode and a charge coupled device (CCD).

7. A multifunctional opto-electronic detection system, which has abilities to observe bio-molecules and reconstruct an image under a confocal scanning principle, the system comprising:

a linear polarizing light source set, used to adjust an intensity of a light source, and determine an initial polarization state of the light source, so as to form a sampling light beam;

a phase modulation unit, used to control a phase change of the sampling light beam, so as to change a polarization state;

a variable incident angle optical set, comprising:

a refraction member, used to lead the sampling light beam to enter the variable incident angle optical set with a different incident location;

a motion platform, used to carry and move the refraction member; and

an optical element set, including a focusing device and a normal reflection device, wherein the focusing device is used to lead the sampling light beam to transmit through a substrate by an incident angle, so that a first total reflection occurs at a desired measuring point on the biochip and a reflection light beam of the sampling light beam is formed, and the normal reflection device can normally reflect the reflection light beam of the sampling light beam to form a backward light beam travelling back to the desire measuring point and being reflected by a second total reflection, whereby a signal light beam is formed and leaves the variable incident angle optical set;

an optical signal analysis unit, at least comprising:

a focusing lens set, used to focus the signal light beam;

a pinhole device, used to allow the focused signal light beam to pass; and

a photosensor, used to sense a light intensity of the signal light beam at the pinhole; and

a reference optical analyzing unit, used to detect a light intensity and a polarization state of a referencing light beam, so as to correct a nonlinear light intensity and a nonuniform absorption on the phase modulator and thereby control the polarization state of the sampling light beam.

8. The system of claim 7, wherein the linear polarizing light source set comprises one selected from the group consisting of a device to emit a signal wavelength light

with a linear polarization, a laser diode incorporating a linear polarization film, and a light emitted diode incorporating a linear polarizer.

9. The system of claim 7, wherein the phase modulation unit comprises one selected from the group consisting of a compensator, a liquid crystal phase modulator, a photoelastic phase modulator, a 1/2 wave plate, and a 1/4 wave plate.

10. The system of claim 7, wherein in the variable incident angle optical set, the refraction member comprises one selected from the group consisting of a reflective mirror, a triangular prism, and a penta prism.

11. The system of claim 7, wherein in the variable incident angle optical set, the motion platform comprises one selected from the group consisting of a step-motor used to drive a uniaxial displacement stage and a DC motor to drive a uniaxial displacement stage.

12. The system of claim 7, wherein in the variable incident angle optical set, the focusing device comprises a planar reflective mirror.

13. The system of claim 7, wherein in the variable incident angle optical set, the focusing device comprises a quasi-paraboloidal mirror and the normal reflection device comprises a quasi-spherical mirror.

14. The system of claim 7, wherein the optical signal analyzing unit comprises one selected from the group consisting of an analyzer with a photodiode, an analyzer with a charge coupled device (CCD)

15. The system of claim 7, wherein the reference optical analyzing unit comprises an analyzer with two photodetectors.

16. A multifunctional opto-electronic detection system, comprising:

a linear polarizing light source set, used to adjust an intensity of a light source, and determine an initial polarization state of the light source, so as to form a sampling light beam;

a variable incident angle optical set, comprising:

a refraction member, used to lead the sampling light beam to enter the variable incident angle optical set with a different incident location;

a motion platform, used to carry and move the refraction member; and

an optical element set, including at least a focusing device, wherein the focusing device is used to lead the sampling light beam to transmit through a substrate by different incident angles at a desired measuring point on the bio-chip, and a total reflection occurs at the desired measuring point, so as to produce a signal light beam after; and

an optical signal analyzing unit, used to detect variation of a light intensity of the signal light beam.

17. The system of claim 16, wherein the linear polarizing light source set comprises one selected from the group consisting of a device to emit a signal wavelength light with a linear polarization, a laser diode incorporating a linear polarization film, and a light emitted diode incorporating a linear polarizer.

18. The system of claim 16, wherein in the variable incident angle optical set, the refraction member comprises one selected from the group consisting of a reflective mirror, a triangular prism, and a penta prism.

19. The system of claim 16, wherein in the variable incident angle optical set, the motion platform comprises one selected from the group consisting of a step-motor

used to drive a uniaxial displacement stage and a DC motor to drive a uniaxial displacement stage.

20. The system of claim 16, wherein in the variable incident angle optical set, the focusing device comprises a focusing lens set or a quasi-paraboloidal reflective mirror.

21. The system of claim 16, wherein the optical signal analyzing unit comprises a lens set with a photodiode or a lens set with a CCD.

/ 22. A multifunctional opto-electronic detection system suitable for use of measuring a surface reaction on a biochip, comprising:

a linear polarizing light source set, used to adjust an intensity of a light source, and determine an initial polarization state of the light source, so as to form a sampling light beam;

a phase modulator, used to control a phase change of the sampling light beam, so as to change a polarization state;

a variable incident angle optical set, comprising:

a refraction member, used to lead the sampling light beam to enter the variable incident angle optical set with a different incident location;

a motion platform, used to carry and move the refraction member; and

an optical element set, including a focusing device and a normal reflection device, wherein the focusing device is used to lead the sampling light beam to transmit through a substrate by an incident angle, so that a first total reflection occurs at a desired measuring point on the biochip and a reflection light beam of the sampling light beam is formed, and the normal reflection device can nor-

mally reflect the reflection light beam of the sampling light beam to form a backward light beam travelling back to the desire measuring point and being reflected by a second total reflection, whereby a signal light beam is formed and leaves the variable incident angle optical set;

an optical signal analysis unit, used to detect a phase change or a light intensity of the signal light beam; and

a reference optical analyzing unit, used to detect a light intensity and a polarization state of a referencing light beam, so as to correct a nonlinear light intensity and a nonuniform absorption on the phase modulator and thereby control the polarization state of the sampling light beam.

23. A multifunctional opto-electronic detection system suitable for use of measuring a surface reaction on a biochip, comprising:

a linear polarizing light source set, used to adjust an intensity of a measuring light source, split the measuring light source into a reference light beam and a sampling light beam, and determine an initial polarization state of the reference light beam and an initial polarization state of the sampling light beam;

a phase modulator, used to control a phase change of the sampling light beam, so as to change a polarization state;

a beam expander, used to expand an area of a sampling point;

a variable incident angle optical set, comprising:

a refraction member, used to lead the sampling light beam to enter the variable incident angle optical set with a different incident location;

a motion platform, used to carry and move the refraction member; and

an optical element set, including a focusing device and a normal reflection device, wherein the focusing device is used to lead the sampling light beam to transmit through a substrate by an incident angle, so that a first total reflection occurs at a desired measuring point on the biochip and a reflection light beam of the sampling light beam is formed, and the normal reflection device can normally reflect the reflection light beam of the sampling light beam to form a backward light beam travelling back to the desire measuring point and being reflected by a second total reflection, whereby a signal light beam is formed and leaves the variable incident angle optical set;

an optical signal analysis unit, used to detect a phase change or a light intensity of the signal light beam; and

a reference optical analyzing unit, used to detect a light intensity and a polarization state of the reference light beam, so as to correct a nonlinear light intensity and a nonuniform absorption on the phase modulator and thereby control the polarization state of the sampling light beam.

24. The system of claim 23, further comprising a interference light path control unit, having function to adjust a light path and a phase, wherein an interference reference light beam with a phase shift interferes with the backward light beam, so as to provide an information to the optical signal analyzing unit for analyzing a phase change.

25. A multifunctional opto-electronic detection system, suitable for use of measuring a surface reaction on a biochip, the system comprising:

a linear polarizing light source set, used to provide a measuring light beam and a referencing light beam;

a phase modulator, used to modulate an initial phase and polarization state of the measuring light beam and the referencing light beam;

a reference analyzing unit, used to analyze the referencing light beam, so as to correct a light intensity of the measuring light beam;

a variable incident angle optical set comprising:

a refraction member, used to lead the sampling light beam to enter the variable incident angle optical set with a different incident location;

a motion platform, used to carry and move the refraction member; and

an optical element set, including a focusing device and a normal reflection device, wherein the focusing device is used to lead the sampling light beam to transmit through a substrate by an incident angle, so that a first total reflection occurs at a desired measuring point on the biochip and a reflection light beam of the sampling light beam is formed, and the normal reflection device can normally reflect the reflection light beam of the sampling light beam to form a backward light beam travelling back to the desire measuring point and being reflected by a second total reflection, whereby a signal light beam is formed and leaves the variable incident angle optical set;

an interference referencing light path control unit, capable of control a light path length of a reference luminous light beam split from the measuring light beam;

an optical signal analysis unit, used to detect a polarization state and a light intensity of the measuring light beam.

26. The system of claim 25, wherein the reference analyzing unit comprises an non-polarizing beam-splitter and a photodetector.

27. The system of claim 25, wherein the reference analyzing unit comprises a polarized beam-splitter and a photodetector.

28. The system of claim 25, wherein the interference referencing light path control unit comprises:

a cavity, used to control the light path length of the reference luminous light beam;

a reflective mirror to produce a reference wave front; and

a voltage driver.

29. The system of claim 25, wherein the variable incident angle optical set comprises:

a prism, used to deflect an incident beam by 90 degrees;

a concave paraboloidal mirror, used to reflect the measuring light beam to a measuring area on the biochip and form a measuring point, wherein the paraboloidal mirror has a parabolic surface crossing the measuring point and is associated with the prism so as to produce different measuring angles;

a concave spherical mirror, which has a center point located on the measuring point, after the measuring light beam reflects from the measuring point from the biochip, the measuring light beam normally enters the concave spherical mirror, and the concave spherical mirror reflects the measuring light beam to the measuring point again; and

a feedback control displacement stage, used to determine the measuring point.

30. The system of claim 25, wherein the variable incident angle optical set comprises:

a prism, used to deflect an incident beam by 90 degrees;

a concave parabolic rod mirror, used to reflect the measuring light beam to a measuring area on the biochip and form a measuring point, wherein the parabolic rod mirror is moved and associated with the prism so as to achieve a measuring area;

a concave cylindrical mirror, which is movable and is located at a proper location to receive a measuring light beam reflected from biochip and reflect the measuring light beam back to the biochip with the measuring area; and

a feedback control displacement stage, used to determine the measuring point within the measuring area.

31. A multifunctional opto-electronic detection system, suitable for use of measuring a surface reaction on a biochip, the system comprising:

a linear polarizing light source set, used to provide a measuring light beam and a referencing light beam;

a phase modulation unit, used to modulate an initial phase and polarization state of the measuring light beam and the referencing light beam;

a reference analyzing unit, used to analyze the referencing light beam, so as to correct a light intensity of the measuring light beam;

a variable incident angle optical set comprising:

a refraction member, used to lead the sampling light beam to enter the variable incident angle optical set with a different incident location;

a motion platform, used to carry and move the refraction member; and

an optical element set, including a focusing device and a normal reflection device, wherein the focusing device is used to lead the sampling light beam to transmit through a substrate by an incident angle, so that a first total reflection occurs at a desired measuring point on the biochip and a reflection light beam of the sampling light beam is formed, and the normal reflection device can normally reflect the reflection light beam of the sampling light beam to form a backward light beam travelling back to the desire measuring point and being reflected by a second total reflection, whereby a signal light beam is formed and leaves the variable incident angle optical set;

a light path adjusting unit, capable of control a light path length of an interference reference luminous light beam split from the measuring light beam;

an optical signal analysis unit, used to detect a polarization state and a light intensity of the interference reference luminous light beam interacting with a tested sample on the biochip, so as to produce two signals normal to each other.

32. The system of claim 31, wherein the reference analyzing unit comprises an non-polarizing beam-splitter and a photodetector.

33. The system of claim 31, wherein the reference analyzing unit comprises a polarized beam-splitter and a photodetector.

34. The system of claim 31, wherein the interference referencing light path control unit comprises:

a cavity, used to control the light path length of the reference luminous light beam;

a reflective mirror to produce a reference wave front; and

a voltage driver.

35. The system of claim 31, wherein the variable incident angle optical set comprises:

a prism, used to deflect an incident beam by 90 degrees;

a concave paraboloidal mirror, used to reflect the measuring light beam to a measuring area on the biochip and form a measuring point, wherein the paraboloidal mirror has a parabolic surface crossing the measuring point and is associated with the prism so as to produce different measuring angles;

a concave spherical mirror, which has a center point located on the measuring point, after the measuring light beam reflects from the measuring point from the biochip, the measuring light beam normally enters the concave spherical mirror, and the concave spherical mirror reflects the measuring light beam to the measuring point again; and

a feedback control displacement stage, used to determine the measuring point.

36. The system of claim 31, wherein the variable incident angle optical set comprises:

a prism, used to deflect an incident beam by 90 degrees;

a concave parabolic rod mirror, used to reflect the measuring light beam to a measuring area on the biochip and form a measuring point, wherein the parabolic rod mirror is moved and associated with the prism so as to achieve a measuring area;

a concave cylindrical mirror, which is movable and is located at a proper location to receive a measuring light beam reflected from biochip and reflect the measuring light beam back to the biochip with the measuring area; and

a feedback control displacement stage, used to determine the measuring point within the measuring area.

37. A multifunctional opto-electronic detection system, suitable for use of measuring a surface reaction on a biochip, the system comprising:

a linear polarizing light source set, used to provide a measuring light beam and a referencing light beam and determine an initial polarization state of the measuring light beam and the referencing light beam;

a phase modulation unit, used to modulate an initial phase and polarization state of the measuring light beam and the referencing light beam;

a variable incident angle optical set comprising:

a refraction member, used to lead the sampling light beam to enter the variable incident angle optical set with a different incident location;

a motion platform, used to carry and move the refraction member; and

an optical element set, including a focusing device and a normal reflection device, wherein the focusing device is used to lead the sampling light beam to transmit through a substrate by an incident angle, so that a first total reflection occurs at a desired measuring point on the biochip and a reflection light beam of the sampling light beam is formed, and the normal reflection device can normally reflect the reflection light beam of the sampling light beam to form a backward light beam travelling back to the desire measuring point and being re-

flected by a second total reflection, whereby a signal light beam is formed and leaves the variable incident angle optical set;

an optical signal analysis unit, used to detect a polarization state and a light intensity of the signal light beam;

a reference optical analyzing unit, used to analyze the referencing light beam, so as to control a polarization state of the sampling light beam by correcting a nonlinear light intensity and nonuniform absorption in the phase modulation unit; and

an interference referencing light path control unit, capable of control a light path length of a reference luminous light beam split from the measuring light beam, so as to provide information to the optical signal analysis unit for analyzing phase change.

38. The system of claim 37, wherein the linear polarizing light source set comprises one selected from the group consisting of a device to emit a signal wavelength light with a linear polarization, a laser diode incorporating a linear polarization film, and a light emitted diode incorporating a linear polarizer.

39. The system of claim 37, wherein the phase modulation unit comprises one selected from the group consisting of a compensator, a liquid crystal phase modulator, a photoelastic phase modulator, a 1/2 wave plate, and a 1/4 wave plate.

40. The system of claim 37, wherein in the variable incident angle optical set, the refraction member comprises one selected from the group consisting of a reflective mirror, a triangular prism, and a penta prism.

41. The system of claim 37, wherein in the variable incident angle optical set, the motion platform comprises one selected from the group consisting of a step-motor

used to drive a uniaxial displacement stage and a DC motor to drive a uniaxial displacement stage.

42. The system of claim 37, wherein in the variable incident angle optical set, the focusing device comprises a planar reflective mirror.

43. The system of claim 37, wherein in the variable incident angle optical set, the focusing device comprises a quasi-paraboloidal mirror and the normal reflection device comprises a quasi-spherical mirror.

43. The system of claim 37, wherein the optical signal analyzing unit comprises one selected from the group consisting of an analyzer with a photodiode, an analyzer with a charge coupled device (CCD)

44. The system of claim 37, wherein the signal analyzing unit comprises an analyzer with two photodetectors.

45. The system of claim 37, wherein the signal analyzing unit comprises an analyzer with a CCD.

46. The system of claim 37, wherein the reference optical analyzing unit comprises an analyzer with two photodetectors.

47. The system of claim 37, wherein the interference referencing light path control unit comprises a voltage driver, a reflective mirror, and a light path adjusting device.